THE CAMBRIDGE STATISTICS DISCUSSION GROUP

Monday 21st November 2016 7:15 for 7:45

The Statistical Laboratory,
Centre for Mathematical Sciences,
Wilberforce Road, Cambridge, CB3 0WB

Use of historical information to supplement a future study:opportunity and difficulty

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GlaxoSmithKline

Abstract: There is currently strong interest in the possibility of utilising historical placebo (or other control) data to supplement the data obtained in a new clinical trial, thereby increasing its power and/or reducing its size. It is generally considered that historical data should be discounted relative to data from the new trial, but determination of the appropriate degree of discounting is a major difficulty. This presentation provides methods for assessing the consequences of different choices or decisions.

The discount can be expressed in terms of the difference between the historical and future means, represented by an *offset variance component* τ^2 . In a Bayesian analysis, there must be a strong prior belief that τ^2 is small if much value is to be obtained from the historical data, but a range of such priors can be explored in a sensitivity analysis. Alternatively, the same numerical results can be viewed in terms of minimisation of the mean square error when biased historical data are included in the estimate, and a range of values of a bias parameter $|\delta|$ can be explored. The choice of value for τ^2 or $|\delta|$ can have a substantial effect on the inferences made, yet a wide range of values may be consistent with the data. Fortunately, external information can sometimes provide additional guidance on the appropriate value. On this basis, it is likely that historical data can provide a valuable contribution to exploratory studies in drug development, where bias can be accepted as one of the research project's risks.

Speaker: Nick was a demonstrator and lecturer at the University of Cambridge between 1979 and 1995. He then moved to lecture at the University of Western Australia from 1995 to 2001. He then returned to the UK, and has worked for GlaxoSmithKline as a statistician and/or geneticist since 2004.

Directions: The main entrance is reached from Clarkson Road by going along the footpath to the right of the Newton Institute, and turning left through the gatehouse towards the main building (Pavilion A), which has a glass front and a curved grassed roof. The main entrance is in the middle of the glass front. Coffee before the talk will be in the common room in Pavilion D, and the talk will be in Meeting Room 4 in Pavilion A. Free parking is available after 5pm on Clarkson and Wilberforce Roads.

Provisional Next Meetings (2017):
2nd February 2017 – David Excell (Featurespace) on 'What can gambling machine data tell us about betting behaviour?'
7th March – Patricia Fara (Clare College) on 'A lab of one's own: science & suffrage in the First World War'.
3rd April – Daniel Gaffney (Sanger).
3rd May – Alun Bedding (Roche). 20th November – Adam Kashlak (Statistical Laboratory).
Supper: Some members eat regularly in the University Centre before each meeting at **5-45pm**. Feel free to join them.
Subscriptions: of 1 pound are now due for attending the 2016-2017 session.
Secretary: Peter Watson, MRC Cognition and Brain Sciences Unit, 15 Chaucer Road, Cambridge CB2 7EF;
telephone 01223 355294 Extension 801; E-mail peter.watson@mrc-cbu.cam.ac.uk.

Slides and .mp3 files of old talks: http://www.mrc-cbu.cam.ac.uk/people/peter.watson/csdg.html

Approved Minutes of Annual General Meeting 2014-2015

The Annual General Meeting for the year 2014-2015 was held at the Cognition and Brain Sciences Unit on 13th October 2015. Present: Ted Harding (in chair), Daniel Bacioiu, Maxime Bolut, Tim Drye, Shenghan Gao, Mary Garratt, Martin Gibson, Khyla Kadeena-Miller, Frank Kelly, Trevor Lewis, Felicia Ng, Chris Rogers, Roger Sewell, Catherine Saunders, Basil Smith, Shahih Tavakoli, Adam Wagner, Peter Watson, Alec Woods. **Apologies:** Dean Buckner, Margaret Corbett, David Galloway, Jurek Gurycz, Sheila Miller, Pamela Morris, Ian Nimmo-Smith, Haidee Philpott. The **minutes** of the previous A.G.M. were circulated and approved. The secretary reported a total attendance of 61 for the 2014-2015 session. He also invited anyone with suggestions for speakers or venues or anyone interested in joining the committee to please contact a committee member.

Treasurer's Accounts and Report 2014-2015:
The CSDG started the year in October 2014 with £33.64 cash in addition to £212.22 in the Cambridge Building Society (plus ~£6.00 interest). The table below shows the financial activity during the current year (Oct14 to Sept15).

Expenditure		**Income**	
Speakers' expenses	£40.21	Balance at Oct 2014	£33.64
		Subscriptions	£50.00

Cash balance at 1st October 2014 £33.64, cash remaining 1st October 2015 £43.43.
There remains £212.22 (plus interest) in a Community account at the Cambridge Building Society.
The account holders are Ted Harding (current chairman), Peter Watson (current secretary) and Adam Wagner (current treasurer). These names can be changed on application. The principle holder is the treasurer. Any of the three account holders can deposit and withdraw money. It is suggested subscriptions remain at £1 for the 2015-2016 session.
Election of officers and committee: Committee (unchanged) for 2015-2016: *chair* Ted Harding; *secretary* Peter Watson; *treasurer* Adam Wagner; *officio* Dave Andrews; *ordinary* Margaret Corbett, Haidee Philpott, Tony Sabin. **Any Other Business:** None.

Draft Minutes of Annual General Meeting 2015-2016

The Annual General Meeting for the year 2015-2016 was held at the Cognition and Brain Sciences Unit on 11th October 2016. Present: Ted Harding (in chair), Brian Bond, Mary Garratt, Katrina Gore, Jurek Gurycz, Peter Jacko, Stephen Kaptoge, Paul Nelson, Nadja Pfetzer, Mark Pilling, Ioanna Tachmazidou, Rosemary Tate, Simon Tavare, Jenny Thomas, Kate Tomlinson, Adam Wagner, Klaudia Walter, Peter Watson. **Apologies:** Margaret Corbett, Peter Freeman, David Galloway, Martin Gibson, Pamela Morris, Ian Nimmo-Smith, Haidee Philpott, Peter Treasure. The **minutes** of the previous A.G.M. were circulated and approved. The secretary reported a total attendance of 95 for the 2015-2016 session. Anyone with suggestions for speakers or venues or anyone interested in joining the committee please contact a committee member.

Treasurer's Accounts and Report 2015-2016:
The CSDG started the year in October 2015 with £43.43 cash in addition to £212.57 in the Cambridge Building Society. The table below shows the financial activity during the current year (Oct15 to Sept16).

Expenditure		**Income**	
Speakers' expenses	£14.70	Balance at Sep 2015	£43.43
Added to Bank a/c	£40.00	Subscriptions	£55.00

Cash balance at 1st October 2015 £43.43, cash remaining 1st October 2016 £43.73. There is now £252.57 (£212.57 + £40, as above, added from the 2015-2016 session plus interest) in a Community account at the Cambridge Building Society. The account holders are Ted Harding (current chairman), Peter Watson (current secretary) and Adam Wagner (current treasurer). These names can be changed on application. The principle holder is the treasurer. Any of the three account holders can deposit and withdraw money. It is suggested subscriptions remain at £1 for the 2016-2017 session.

Election of officers and committee: Warm thanks go to Margaret Corbett who has stepped down from the committee after many years including a spell as treasurer. She is replaced by Martin Gibson. Committee for 2016-2017: *chair* Ted Harding; *secretary* Peter Watson; *treasurer* Adam Wagner; *officio* Dave Andrews; *ordinary* Martin Gibson, Haidee Philpott, Tony Sabin. **Any Other Business:** None.